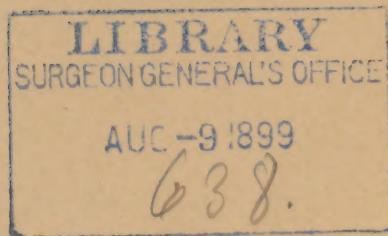


BONNEY (S.G.)

PULMONARY HEMORRHAGES IN COLORADO.

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During the past year and a half, subsequent to the compilation of brief statistical observations upon this subject,* I have had occasion, from my personal experience, to note certain modifications of previous deductions, owing to the somewhat increased frequency over preceding years of hemorrhages in pulmonary invalids. For this coincidence I am unable to offer any satisfactory explanation at this time, but believe the general subject of hemorrhages in Colorado to be of sufficient interest to justify the presentation of further clinical facts with conservative and perhaps rational conclusions therefrom.

An analysis is made of 350 recorded cases of pulmonary tuberculosis, selected from private practice, and subjected to continuous observation. No consideration is here given to other than the relation of the Colorado climate to pulmonary hemorrhages.

By improvement, I refer to a perceptible gain in the general condition such as increased nutrition, diminution of cough, expectoration and fever, and a lessening of the activity of the tubercular process as shown by physical signs. Under this term are included the varying

degrees of arrestment irrespective of further classification.

The percentage of improvement for the entire number is 63, not including the considerable class who improved for a period and subsequently failed through obvious causes not attributable to climate.

One hundred and seventy-six, or over half the cases, have experienced different degrees of pulmonary hemorrhage at some time in the course of the disease. The percentage of improvement for this number, as a whole, is 66.

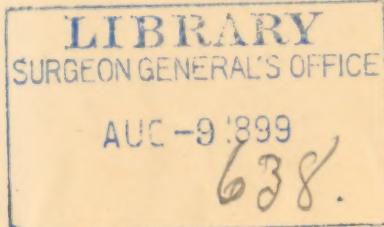
Seventy-two, or nearly one-fifth, presented the history of a hemorrhagic onset of the tubercular infection. The hemorrhage was either the first symptom distinctly referable to the disease, or supervened immediately upon other manifestations. For this class the percentage of improvement is 71.

For the remaining 248, without initial hemorrhages, the percentage of improvement is 61.

Of the entire number of hemorrhagic cases, 140 occurred before coming to Colorado, 11 of these taking place within three weeks before arrival. Percentage of improvement, 60.

Thirty-six had their first hemorrhage in Colorado, with percentage of improvement, 44.

*Boston Medical and Surgical Journal, September 16, 1897.



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Of the 140 with hemorrhage before arrival, 34 have had subsequent recurrences in Colorado. For these the percentage of improvement is 47.

Of the entire list, 55 are over thirty years of age, and 121 are under thirty.

One hundred and thirty-three are males, and 43 females.

Forty-three are possessed of phlegmatic temperaments and 33 of well-marked nervous tendencies.

As to the character and extent of the pulmonary involvement, 53 may be described as having rather slight infection, with percentage of improvement, 77. 56 with moderate involvement, percentage of improvement, 68, and 67 showing extensive tubercular invasion, percentage of improvement, 54.

With reference to the degree of activity of the tubercular infection, and the general condition at the time of the hemorrhages, it is perhaps well to consider separately those occurring before and after coming to Colorado.

Of the 140 before arrival, the 72 with hemorrhagic onset may be fairly stated to have taken place in the midst of apparent health. Twenty-one present the history of hemorrhage coincident with a period of improvement, either at home or at other health resorts. Forty-seven describe their hemorrhage as occurring in the course of increased activity of the disease with corresponding loss in the general strength.

Of the 36 with initial hemorrhages in Colorado, 22 developed in the absence of any decided improvement, although in some instances with no distinct loss, in several, with following gain. Fourteen however, took place during a time of general improvement, with also a

definite change for the better in the physical signs.

Of the 34 with previous hemorrhages, but subsequent recurrences in Colorado, 14 occurred before any gain had been established, and nearly all comparatively early after arrival. Twenty resulted, after a pronounced improvement had been effected, with diminution of cough and expectoration, increased nutrition, and comparative absence of fever.

Considered jointly, 70 are found to have had hemorrhages in Colorado, including those originating and those recurring here. Thirty-six of the whole number had made no appreciable gain, or had grown worse, at the time of the hemorrhage, and 34 had shown positive improvement. At the present time 32 are recorded as doing well, both in the general condition and as regards the tubercular process, while 38 are either no better, worse, or dead.

As to the time of the hemorrhages, relative to the period of residence in higher altitudes, 13 occurred during the first month in Colorado, several being immediately prior and subsequent to arrival. Ten of these have done exceedingly well in all respects and have suffered no recurrences. Fifty-seven developed later than the first month. Of these but 22 have shown following improvement.

Varying degrees of cavity formation were found to exist in 17 of the 70 cases with hemorrhages in Colorado. Nineteen were recognized in the 106 cases with history of previous hemorrhages. Twenty-three were detected in those without hemorrhages at any time. Thus of 58 cases with pulmonary cavities, 36 had been complicated with hemorrhage,

but less than half occurred in Colorado.

The character of the hemorrhage has been copious in 33 cases, all corresponding, more or less, to the aneurismal type. The remaining 37 were slight, but subject to more frequent recurrences.

Those of apparently aneurismal origin are perhaps of especial interest. Fifteen occurred in the midst of pronounced improvement, 12 were initial hemorrhages, 11 are largely attributable to recognized causes as excesses, great emotional excitement or severe over-exertion, in spite of frequent admonitions to the contrary. Eleven of the 33 died at once, or very shortly afterwards. Twenty-two rallied, following most alarming and exhausting hemorrhages, with only 4 having later repetitions and these of lighter character. Eight of these, however ultimately failed to recuperate sufficiently to regain the loss entailed by the hemorrhages, and finally entered upon a progressive decline as a remote result. Ten suffered no permanent ill effects and remained much as before. Four are conspicuous examples of the remarkable improvement sometimes observed following very severe hemorrhages. All of the latter were doing unsatisfactorily previously, but later showed material gain, particularly in the relief from cough, headache and restlessness, diminution of expectoration, and in increase of appetite.

As regards the 38 of less severe character, 25 developed as initial hemorrhages and 14 as recurrences. All of these took place, as a rule, independently of any distinctly recognized exciting cause. It was noted, however, that a large proportion occurred during temporary periods of exacerbation of cough,

elevation of temperature, or increase of nervous disturbances.

From the statistical data here introduced, it would seem rational to conclude:—

1. That the susceptibility to hemorrhage in pulmonary invalids, is decidedly greater in those with nervous than with phlegmatic temperaments.
2. That hemorrhagic cases in general, constituting about one-half the entire number, do rather better in Colorado than the non-hemorrhagic.
3. That those cases with distinctly hemorrhagic onset, in the absence of pronounced symptoms, or existence of physical signs, respond more than all others to the favorable influences of the climate, presumably on account of the early diagnosis secured and the more prompt recourse to climatic change.
4. That in those with previous hemorrhages the proportion of recurrences in Colorado is small, but the ultimate results less satisfactory.
5. That not far from one in ten or twelve may be expected to have a primary hemorrhage in Colorado, those belonging to this class furnishing the smallest percentage of improvement.
6. That recurrences, shortly after arrival, are more likely to ensue in those cases with hemorrhage within one month before coming to Colorado, the ultimate prognosis, however, being by no means necessarily unfavorable.
7. That hemorrhages occurring after a prolonged residence in Colorado are usually more serious and attended more frequently with unfortunate results.
8. That no definite relation exists between the development of the hemorrhage, and either the extent of pulmon-

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ary involvement or the degree of activity of the tubercular process, the larger number of those before arrival occurring during comparatively slight, inactive infection, and nearly half of those in Colorado taking place in the course of pronounced improvement.

9. That, as is well known, the existence of moderately extensive cavity formation predisposes to the tendency to hemorrhages, although not more so in Colorado than elsewhere.

10. That even copious hemorrhages,

resulting from rupture of small pulmonary aneurisms, although always of serious moment, and possibly more frequent in Colorado than at lower elevations, are not necessarily associated with a uniformly unfavorable prognosis.

11. That the avoidance of pulmonary hemorrhage in Colorado demands competent, continuous medical supervision, and strict compliance with detailed instructions with reference to rest and mode of life.

